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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
NGUYEN, LAM S	
ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/067,359	NITTA ET AL.	
	Examiner	Art Unit	
	LAM S NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15-20,22 and 25-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-13,15,18-20,22 and 25-30* is/are rejected.

7)☒ Claim(s) *4,5,16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/04/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 6-13, 15, 18-20, 22, and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike et al. (US 5767876).

Referring to claims 1, 13, 25-26, and 30:

Koike et al. discloses a color ink-jet recording apparatus using a black recording head (*FIG. 36, element 81*) that ejects black ink on the basis of black image data and color recording heads that ejects color ink on the basis of color image data (*FIG. 36, element 82*), the color ink permeating through a recording medium at a higher speed than said black ink (*column 4, line 57-65: The image is recorded by using low-permeability black ink and high-permeability color ink*), the apparatus completing a record image in a predetermined recording area including pixels (*column 4, lines 35-38: The unit pixel is a dot matrix consisting of ink dots in each of which a black ink dot and a color ink dot overlap with each other and blank dots. FIG. 49-51: The area includes the bands A, B, and C, wherein each band includes a plurality of dot matrixes (pixels)*) on said recording medium by causing said respective recording heads to perform a plurality of recording scans in the same pixel (*FIG. 49: In the first scan, the pixel includes the overlapped black-cyan ink dots formed in the band A by the black and color printheads. FIG. 50: In the next scan, the same pixel is printed with magenta (M) color ink by the color printhead. FIG. 51: The*

same pixel is printed with yellow (Y) color ink by the color printhead. Therefore, the printheads perform a plurality of printing scans in the same pixel), the apparatus comprising:

data generating means, which, for each of the plurality of recording heads, uses mask patterns (*FIG. 16: Each color image date is filtered by a corresponding filter 34-37*) to generate image data for each of said recording scans corresponding to said predetermined recording area, so that black image data corresponding to said predetermined recording area are allotted to each of said recording scans, and color image data corresponding to said predetermined recording area are to each of said recording scans (*FIG. 49-51: In each recording scan, black ink dots are allotted to a corresponding band and each of the color inks is also allotted to each of the bands*),

wherein each of the mask pattern for said black image data and color image data used during the same recording scan has different allotment rates (*FIG. 49-51: the allotment rates of black and colors are different in the same scan; For example, in FIG. 49 and column 27, line 16-18, "black and cyan are recorded by a first record scan" to print the band A with the allotment rate of Cyan is 50% and the allotment rate of Black is 33%. In the next scan, the same allotment rates of the black and cyan are recorded together to print band B (FIG. 50). In the third scan, similarly, the black and cyan are recorded together to print band C (FIG. 51). Therefore, the black image data and the cyan image data are used during the same scan for every scans with different allotment rates*).

Referring to claim 2: wherein mask pattern having different allotment rates are used as the mask patterns for said black image data and color image data (*FIG. 38-51*).

Referring to claims 3, 15: further comprising black image data allotment rate setting means for setting, for each of said recording scans, allotment rates for the mask patterns for said black image data (*FIG. 38-51: a corresponding means for setting the rate of black image data for each scan*); and

color image data allotment rate setting means for setting, for each of said recording scans, allotment rates for the: mask patterns for said color image data (*FIG. 38-51: a corresponding means for setting the rate of color image data for each scan*);

wherein both said image data allotment rate setting means set different allotment rates for the mask patterns for said black image data and color image data used during the same recording scan (*FIG. 38-51: the allotment rates of black and colors are different; For example, in FIG. 49, recording scan A, while the allotment rate of Cyan is 50%, the allotment rate of Black is 33%*).

Referring to claims 6, 18: wherein when a black image is to be formed in said predetermined area, before or after the black ink is caused to impact the recording medium, at least one of said plural types of color ink is caused to impact locations onto which the black ink is ejected (*FIG. 40-42, 44-45, 48-51, FIG. 34A_B)*).

Referring to claims 7, 19: further comprising a thinning means, which thins said black image data at a predetermined thinning rate and causes the plural types of color ink to impact portions of the recording area in which said black image data has been thinned (*FIG. 44-45: scan A and FIG. 14A-B*).

Referring to claims 8, 20: wherein at least one of said plural types of color ink is reactive and tends to cause said black ink to solidify or cohere when contacting with said black ink (*column 21, line 32-41*).

Referring to claims 9, 21: wherein said recording heads executes recording only during scans in one of the forward and backward scanning directions, and in the scanning direction in which the recording is carried out, said color recording heads are arranged in front of said black recording head (*FIG. 46*).

Referring to claims 10, 22: wherein if said recording heads carry out recording in both the forward and backward scanning directions, then during the first recording scan, said color image data has a higher allotment rate than said black image data (*FIG. 49*).

Referring to claims 11, 23: wherein said plural color ink types include cyan, magenta, and yellow ink (*FIG. 36, element 82*).

Referring to claims 12, 24: wherein said recording heads exert thermal energy to generate bubbles in the ink so that energy generated by the bubbles causes the ink to be ejected (*column 1, line 29-32*).

Referring to claims 26-27: a program for executing image processing and a computer-readable storage medium storing the program (*column 18, lines 18-31*).

Referring to claims 28-29: wherein the allotment rate of the mask pattern for said color/ black image data used in one recording scan of two recording scans among said plurality of recording scans is different from the allotment rate of the mask pattern for said color/black image data used in the other recording scan of said two recording scans (*FIG. 49-51: In the first scan (FIG. 49), the allotment rates of black, cyan, and magenta inks to print band A are 33%, 50%,*

and 0%, respectively. In the second scan, the allotment rates of black and cyan inks to print the same band A are both 0%, but the allotment rate of magenta ink is 16%).

Referring to claims 30: wherein the allotment rates of the respective mask patterns for said black and color image data used in one recording scan of two recording scans among said plurality of recording scans are different to each other, and the allotment rates of the respective mask patterns for said black and color image data used in the other recording scan of said two recording scans are different to each other (*FIG. 49-51: In the first scan (FIG. 49), the allotment rates of black and magenta inks to print band A are different to each other (33% and 0%, respectively). In the second scan, the allotment rates of black and magenta inks to print the same band A are also different to each other, while black is 0%, magenta is 16%*).

Allowable Subject Matter

Claims 4-5 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for allowance were indicated in the previous office action.

Response to Arguments

Applicant's arguments filed 10/04/2004 have been fully considered but they are not persuasive.

The applicants argued that Koike is not seen to disclose or to suggest generating data, for each of a plurality of recording heads, using mask patterns to generate image data for each of the recording scans corresponding to a predetermined recording area including pixels, so that black image data corresponding to the predetermined recording area are allotted to each of the

recording scans, and color image data corresponding to the predetermined recording area are allotted to each of the recording scans, wherein each of the mask patterns for the black image data and color image data used during the same recording scan has different allotment rates. The argument has been found not persuasive and the reasons were clearly explained in the above rejection regarding to claims 1, 13, and 25-26.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
January 6, 2005

HAI PHAM
PRIMARY EXAMINER